

DATA HEALTH BRIEF: EPINEPHRINE ADMINISTRATION IN SCHOOLS

Massachusetts Department of Public Health

Center for Community Health

School Health Unit

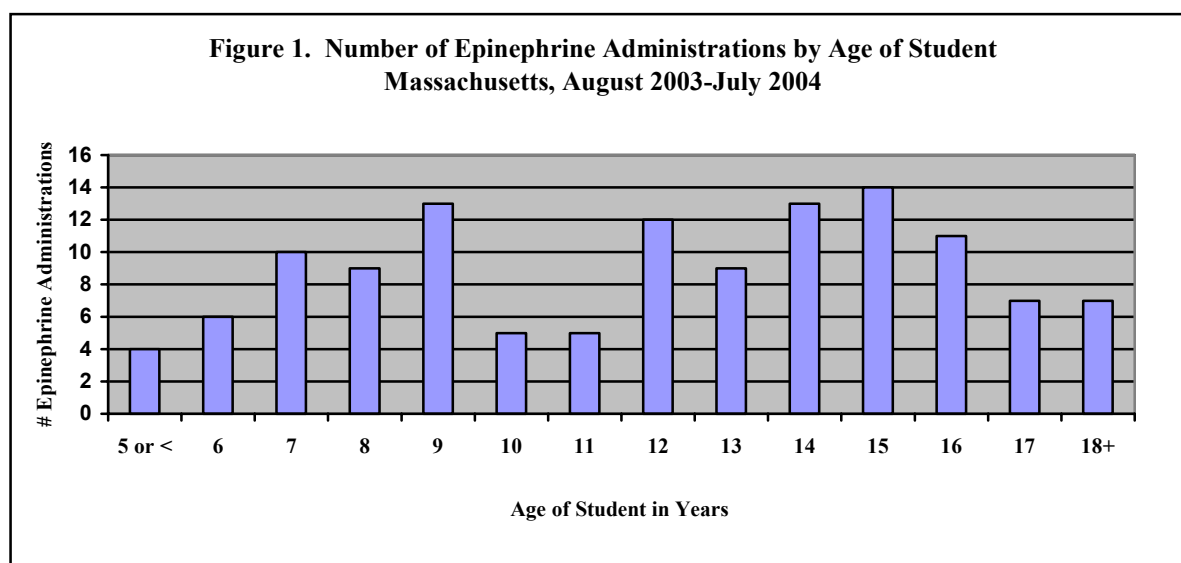
August 1, 2003 – July 31, 2004 (School Year 2003 – 2004)

This data health brief is the first in a series of annual data health briefs to document the epidemiology of epinephrine administration for the treatment of allergic reactions in Massachusetts schools. Data were reported to the Massachusetts Department of Public Health (MDPH), School Health Unit, during the 2003 – 2004 school year with dates from 8/1/03 to 7/31/04. During this period of time, 90 school districts and three vocational-technical schools reported 133 administrations of epinephrine for the treatment of allergic reactions in schools. Data on epinephrine administration in schools is submitted to the MDPH on a standardized form, Report of EpiPen[®] Administration, by the school district at the time of the occurrence. Reporting of epinephrine administration in schools became mandatory under 105 CMR 210 for all public and nonpublic schools in November 2004. Since notification of this change did not immediately reach all school districts and reporting was voluntary prior to this date, epinephrine administrations may be underreported for this school year.

- Although all regions of the state reported epinephrine administration, almost two-thirds of the reports were submitted by either the Northeast (36%) or Metrowest (28%) regions of the state.
- While most school districts reported only one administration of epinephrine, eight school districts reported five or more epinephrine administrations during the school year.
- More than half (54%) of the administrations occurred during the months of March, May, September, and October.

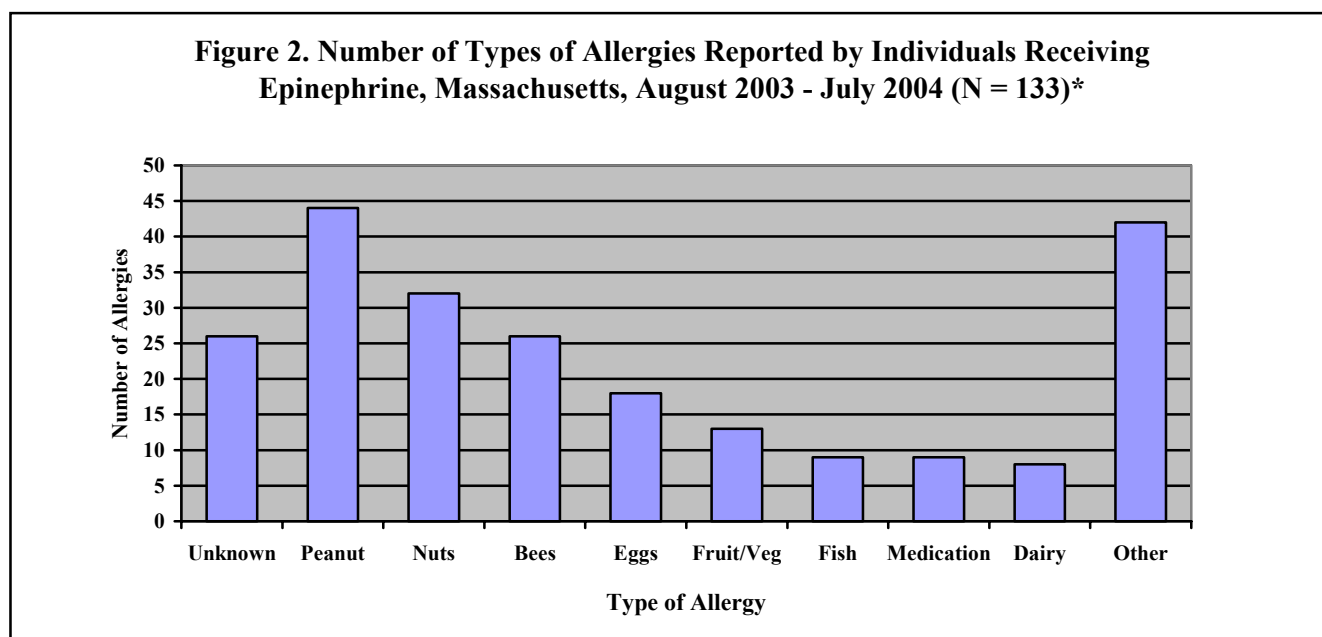
Characteristics of Individuals Receiving Epinephrine

- Six of the administrations were to adult staff members; the remaining 127 were administered to students ranging in age from 4 – 20 years (Figure 1).



Data Source: Report of EpiPen Administration forms.

- More females (59%) received epinephrine than males (41%).
- Thirty-one percent of the individuals receiving epinephrine reported having multiple allergies. Among these individuals, several different combinations of allergens were reported, including allergies to peanuts, tree nuts, dairy, egg, fish/shellfish, soy, sesame seeds, certain fruits and vegetables, latex, insect venom, and others. The most common allergen reported was peanuts (44% of the cases)(Figure 2).
- In 26% of the cases, the student was not known to have an allergic condition *at the time of the anaphylactic event*. This percentage differs from the number of cases for the ‘Unknown’ category in Figure 2 since some allergic conditions could be diagnosed immediately *after the event* (e.g. allergic reactions to bee stings).
- Types of allergies included in the “Other” category included allergies to latex, perfume, paint fumes, medication, and miscellaneous foods. Exercise-induced anaphylaxis and cold urticaria were also included in this category.



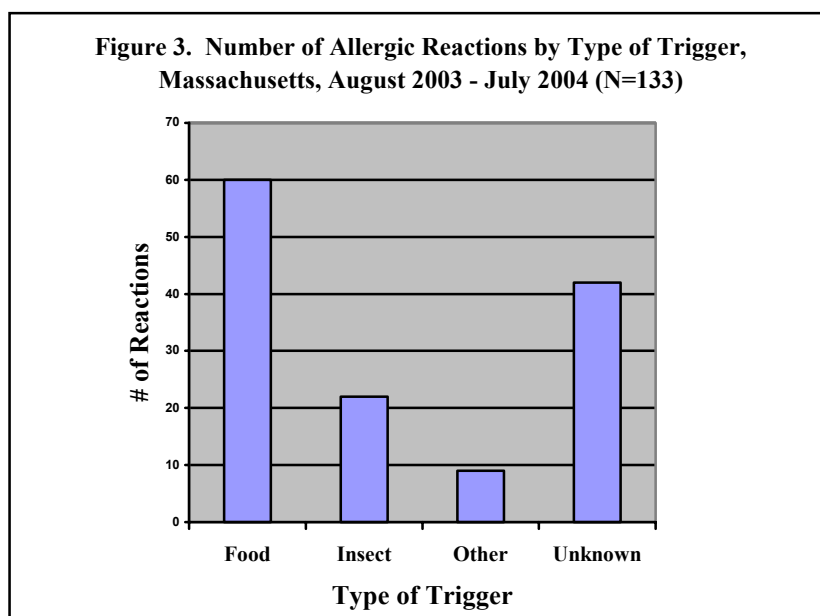
Data Source: Report of EpiPen Administration forms.

*Since those with multiple allergies reported more than one allergen, the total number of allergies reported will be greater than the number of cases

Characteristics of Allergic Reactions

- Some type of food was believed to be the cause of 45% of the reactions (Figure 3). In 22 cases, the allergic reaction was triggered by the ingestion of some type of snack food, e.g., cookies, candy, cupcakes, chips, etc.
- In 32% of the cases, the actual allergen that triggered the reaction was unknown (Figure 3).
- The triggering agent could be definitively traced to a known allergen in only 27 cases.

- In the majority of cases (71%), the symptoms reported involved the respiratory tract such as tightness of the throat, wheezing, or difficulty swallowing.
- Symptoms most frequently developed in the classroom (51%). Other locations included the cafeteria (13%), health office (13%), playground (8%), gym (5%) and various locations both within and outside the school building.



Data Source: Report of EpiPen Administration forms.

- Most (90%) of the epinephrine administrations occurred in the health office. Other locations included the classroom, gym, cafeteria, and various other locations both within and outside the school building.
- The majority of epinephrine administrations were performed by registered nurses (87%). In eight cases, epinephrine was administered by other types of personnel as follows: 2 administrations each by teachers, EMTs, and LPNs; 1 administration by a mother; and 1 administration by a supervisor at a private school. All unlicensed personnel had been appropriately trained in the administration of epinephrine.
- In nine cases, the epinephrine was self administered by students ranging in age from 15 years to 18 years. In all cases involving self-administration, appropriate protocols were followed in notifying school personnel of the administration.
- The average time between development of symptoms and the administration of epinephrine for all individuals (with both known and unknown allergic conditions) was 11 minutes, with a range of 0 – 60 minutes.
- Of those students with known allergies, 90% had an individualized health care plan (IHCP) in place. In at least two cases, the IHCP had not been finalized due to lack of input by parent or healthcare provider.

- Seven students (5%) were not transported to a medical facility via the Emergency Medical System. In all these cases, the student was transported to either a physician's office, health center, or emergency room by a parent.

Characteristics of Cases Involving Individuals with Unknown Allergic Conditions

- Thirty-five cases involved individuals with unknown allergic conditions. In five of the 35 cases, the individual had a history of an allergic condition, but this information was not communicated to school personnel.
- The average age of students with unknown allergic conditions was 12 years, with a range of 7 – 18 years.
- Eighty percent of students with unknown allergic conditions experienced symptoms involving the respiratory system such as tightness of the throat, wheezing, or difficulty swallowing.
- The average amount of time between onset of symptoms and administrations of epinephrine in those individuals with no known allergies was 12 minutes, with a range of 1 – 50 minutes.